INDUSTRIAL ENGINEERING TECHNOLOGY - B.S.

College of Aeronautics and Engineering
School of Engineering
www.kent.edu/cae

About This Program

Ready to improve how the world works one system at a time? The Industrial Engineering Technology program focuses on the practical application of engineering principles to optimize processes, increase efficiency and solve complex challenges for manufacturing, logistics, healthcare and beyond. Read more...

Contact Information

- cae@kent.edu | 330-672-2892
- Speak with an Advisor
- Chat with an Admissions Counselor

Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus

Examples of Possible Careers and Salaries*

Architectural and engineering managers

- 2.6% slower than the average
- 198,100 number of jobs
- $149,530 potential earnings

Cost estimators

- -1.5% decline
- 214,200 number of jobs
- $66,610 potential earnings

Industrial engineering technologists and technicians

- 1.5% slower than the average
- 68,500 number of jobs
- $57,320 potential earnings

Industrial engineers

- 10.1% much faster than the average
- 295,800 number of jobs
- $88,950 potential earnings

Industrial production managers

- 0.9% little or no change
- 190,100 number of jobs
- $108,790 potential earnings

Logisticians

- 4.4% about as fast as the average
- 188,200 number of jobs
- $76,270 potential earnings

Occupational health and safety specialists

- 3.8% about as fast as the average
- 100,500 number of jobs
- $76,340 potential earnings

Occupational health and safety technicians

- 4.8% about as fast as the average
- 22,100 number of jobs
- $53,340 potential earnings

Operations research analysts

- 24.8% much faster than the average
- 105,100 number of jobs
- $86,200 potential earnings

Additional careers

- Manufacturing engineer
- Metal and plastic machine worker
- Process analyst
- Quality control inspector

Accreditation

The B.S. degree in Industrial Engineering Technology is accredited by the Association of Technology, Management and Applied Engineering (ATMAE). The College of Aeronautics and Engineering is accredited as a “Certified School” by the Foundry Educational Foundation (fefinc.org).

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students.

First-Year Students on the Kent Campus: First-year admission policy on the Kent Campus is selective. Admission decisions are based upon cumulative grade point average, strength of high school college preparatory curriculum and grade trends. Students not admissible to the Kent Campus may be administratively referred to one of the seven regional campuses to begin their college coursework. For more information, visit the admissions website for first-year students.

First-Year Students on the Regional Campuses: First-year admission to Kent State's campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Twinsburg Academic Center, is open to anyone with a high school diploma or its equivalent. For more information on admissions, contact the Regional Campuses admissions offices.

International Students: All international students must provide proof of proficiency of the English language (unless they meet specific exceptions) through the submission of an English language proficiency test score or by completing English language classes at Kent State's English as a Second Language Center before entering their program. For more information, visit the admissions website for international students.

Former Students: Former Kent State students who have not attended another institution since Kent State and were not academically dismissed will complete the re-enrollment process through the Financial, Billing and Enrollment Center. Former students who attended another college or university since leaving Kent State must apply for admissions as a transfer or post-undergraduate student.

Transfer Students: Students who attended an educational institution after graduating from high school or earning their GED must apply as transfer students. For more information, visit the admissions website for transfer students.

Admission policies for undergraduate students may be found in the University Catalog's Academic Policies.

Students may be required to meet certain criteria to progress in their program. Any progression requirements will be listed on the program's Coursework tab

Note: Students admitted to the program are expected to demonstrate prerequisite knowledge on a math placement assessment (the ALEKS math assessment) prior to registering for their first semester. Students who fail to obtain the minimum score required to place into the required math courses are at risk of delaying graduation.

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
BA 24056	BUSINESS ANALYTICS I	3
BA 44062	SUPPLY CHAIN MANAGEMENT	3
BA 44152	PROJECT MANAGEMENT [1,2]	3
or EMAT 41510	PROJECT MANAGEMENT AND TEAM DYNAMICS (WIC)	
or ENGR 36620	PROJECT MANAGEMENT IN ENGINEERING	
ENG 20002	INTRODUCTION TO TECHNICAL WRITING	3
ENGR 11001	INTRODUCTION TO ENGINEERING	2
ENGR 11002	INTRODUCTION TO ENGINEERING LABORATORY	1
ENGR 13586 & ENGR 13587	COMPUTER AIDED DESIGN I and COMPUTER AIDED DESIGN I LABORATORY [3]	3
or MERT 12001	COMPUTER-AIDED DESIGN	
ENGR 20000	PROFESSIONAL DEVELOPMENT IN ENGINEERING	1
ENGR 20002	MATERIALS AND PROCESSES [3]	3
or MERT 12004	MANUFACTURING PROCESSES	
ENGR 23585	COMPUTER AIDED DESIGN II	3
ENGR 30001	APPLIED THERMODYNAMICS [3]	3
or MERT 42000	THERMODYNAMICS FOR ENGINEERING TECHNOLOGY	
ENGR 31016	MANUFACTURING TECHNOLOGY	3
ENGR 31065	CAST METALS	3
ENGR 33031	PROGRAMMABLE LOGIC CONTROLLERS	3
ENGR 33033	HYDRAULICS/PNEUMATICS	3
ENGR 33111	STATICS AND STRENGTH OF MATERIALS [3]	3-6
or MERT 22005 & MERT 22007	STATICS and STRENGTH OF MATERIALS	
ENGR 33700	QUALITY TECHNIQUES	3
ENGR 33870	FACILITY DESIGN AND MATERIAL HANDLING	3
ENGR 35550	LAW AND ETHICS FOR ENGINEERS	2
ENGR 42710	ADDITIVE MANUFACTURING AND 3D PRINTING	2
ENGR 42711	ADDITIVE MANUFACTURING AND 3D PRINTING LABORATORY	1
ENGR 43080	INDUSTRIAL AND ENVIRONMENTAL SAFETY	3
ENGR 43550	COMPUTER-AIDED MANUFACTURING	3
ENGR 43899	ENGINEERING TECHNOLOGY CAPSTONE (ELR) (WIC) [2]	3
MGMT 24163	PRINCIPLES OF MANAGEMENT	3
Electrical Circuits Electives, choose from the following: [3]		4-7
EERT 12000 & EERT 12001	ELECTRIC CIRCUITS I and ELECTRIC CIRCUITS II	
ENGR 21020 & ENGR 21022	SURVEY OF ELECTRICITY AND ELECTRONICS and SURVEY OF ELECTRICITY AND ELECTRONICS LABORATORY [3]	
Additional Requirements (courses do not count in major GPA)		
CAE 12260	SOLVING PROBLEMS IN AERONAUTICS AND ENGINEERING [4]	1-3
ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
MATH 11022	TRIGONOMETRY (KMCR)	3
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13002	GENERAL COLLEGE PHYSICS II (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
PHY 13022	GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)	1
PSYC 11762	GENERAL PSYCHOLOGY (DIVD) (KSS)	3
UC 10001	FLASHES 101	1
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours) [5]		11
Minimum Total Credit Hours:		**120**

1. Some course options may require coursework outside of this program.
2. A minimum C grade must be earned to fulfill the writing-intensive requirement.
3. Preferred option for students: ENGR 13586, ENGR 13587, ENGR 20002, ENGR 21020, ENGR 21022, ENGR 30001, ENGR 33111.
4. Students scoring 34 or below on the ALEKS math assessment are required to enroll in CAE 12260 until they successfully complete MATH 00022.
5. Students are encouraged to declare a minor to fulfill general electives. Suggestions include, but are not limited to, Innovation, Management, Sustainability or a foreign language minor.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.250	2.000

Roadmap

This roadmap is a recommended semester-by-semester plan of study for this program. Students will work with their advisor to develop a sequence based on their academic goals and history. Courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

	Semester One		Credits
	CAE 12260	SOLVING PROBLEMS IN AERONAUTICS AND ENGINEERING	1
	ENGR 13586 & ENGR 13587 or MERT 12001	COMPUTER AIDED DESIGN I and COMPUTER AIDED DESIGN I LABORATORY or COMPUTER-AIDED DESIGN	3
	ENGR 20002 or MERT 12004	MATERIALS AND PROCESSES or MANUFACTURING PROCESSES	3
!	MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
	UC 10001	FLASHES 101	1
	Kent Core Requirement		3
	Kent Core Requirement		3
		Credit Hours	**17**
	Semester Two		
	ENGR 11001	INTRODUCTION TO ENGINEERING	2
	ENGR 11002	INTRODUCTION TO ENGINEERING LABORATORY	1
	ENGR 23585	COMPUTER AIDED DESIGN II	3
!	MATH 11022	TRIGONOMETRY (KMCR)	3
	PSYC 11762	GENERAL PSYCHOLOGY (DIVD) (KSS)	3
	Kent Core Requirement		3
		Credit Hours	**15**
	Semester Three		
	BA 24056	BUSINESS ANALYTICS I	3
!	ENG 20002	INTRODUCTION TO TECHNICAL WRITING	3
	ENGR 31016	MANUFACTURING TECHNOLOGY	3
!	PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
!	PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
		Credit Hours	**14**
	Semester Four		
	ECON 22060	PRINCIPLES OF MICROECONOMICS (KSS)	3
	ENGR 20000	PROFESSIONAL DEVELOPMENT IN ENGINEERING	1
	ENGR 31065	CAST METALS	3
	ENGR 33033	HYDRAULICS/PNEUMATICS	3
!	PHY 13002	GENERAL COLLEGE PHYSICS II (KBS)	4
!	PHY 13022	GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)	1
		Credit Hours	**15**
	Semester Five		
	ENGR 33111 or MERT 22005 ***and*** MERT 22007	STATICS AND STRENGTH OF MATERIALS or STATICS ***and*** STRENGTH OF MATERIALS	3-6
	ENGR 33700	QUALITY TECHNIQUES	3
	MGMT 24163	PRINCIPLES OF MANAGEMENT	3
	Electrical Circuits Electives		4-7
	General Elective		3
		Credit Hours	**16**
	Semester Six		
	BA 44152 or EMAT 41510 or ENGR 36620	PROJECT MANAGEMENT or PROJECT MANAGEMENT AND TEAM DYNAMICS (WIC) or PROJECT MANAGEMENT IN ENGINEERING	3
!	ENGR 33031	PROGRAMMABLE LOGIC CONTROLLERS	3
	ENGR 33870	FACILITY DESIGN AND MATERIAL HANDLING	3
	ENGR 42710	ADDITIVE MANUFACTURING AND 3D PRINTING	2
	ENGR 42711	ADDITIVE MANUFACTURING AND 3D PRINTING LABORATORY	1
	General Elective		3
		Credit Hours	**15**
	Semester Seven		
	ENGR 30001 or MERT 42000	APPLIED THERMODYNAMICS or THERMODYNAMICS FOR ENGINEERING TECHNOLOGY	3
	ENGR 35550	LAW AND ETHICS FOR ENGINEERS	2
	ENGR 43550	COMPUTER-AIDED MANUFACTURING	3
	Kent Core Requirement		3
	General Elective		3
		Credit Hours	**14**
	Semester Eight		
	BA 44062	SUPPLY CHAIN MANAGEMENT	3
	ENGR 43080	INDUSTRIAL AND ENVIRONMENTAL SAFETY	3
	ENGR 43899	ENGINEERING TECHNOLOGY CAPSTONE (ELR) (WIC)	3
	Kent Core Requirement		3
	General Elective		2
		Credit Hours	**14**
		Minimum Total Credit Hours:	**120**

University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

Flashes 101 (UC 10001)	1 credit hour
Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.	
Experiential Learning Requirement (ELR)	varies
Students must successfully complete one course or approved experience.	
Kent Core (see table below)	36-37 credit hours
Writing-Intensive Course (WIC)	1 course
Students must earn a minimum C grade in the course.	
Upper-Division Requirement	39 credit hours

Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.	
Total Credit Hour Requirement	120 credit hours

Kent Core Requirements

Kent Core Composition (KCMP)	6
Kent Core Mathematics and Critical Reasoning (KMCR)	3
Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)	9
Kent Core Social Sciences (KSS) (must be from two disciplines)	6
Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)	6-7
Kent Core Additional (KADL)	6
Total Credit Hours:	**36-37**

Program Learning Outcomes

Graduates of this program will be able to:

1. Apply knowledge, techniques, skills and modern tools of mathematics, science, engineering and technology to solve broadly defined engineering problems appropriate to the discipline.
2. Design systems, components or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline.
3. Apply written, oral and graphical communication in broadly defined technical and non-technical environments, and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements and experiments and analyze and interpret the results to improve processes.
5. Function effectively as a member as well as a leader on technical teams.

The educational objectives of the program are the following:

1. Drive positive change in the community by engaging in careers in the areas of manufacturing, quality, engineering management, foundry operations or related fields in a manner that promotes excellence and integrity.
2. Practice forward-thinking through continued education by way of professional development, graduate education and other continued self-motivated learning.
3. Successfully navigate the ever-changing trajectory of the world, practicing compassion while meeting personal and professional goals.

Full Description

The Bachelor of Science degree in Industrial Engineering Technology successfully prepares graduates to apply basic engineering principles, skills and management practices using a systems approach to provide leadership and applied solutions to technical problems addressing societal needs and challenges. The program provides students instruction in basic math and science, engineering principles, processes and project and supply chain management. Students learn in the classroom as well as through hands-on activities and experiments.

This program can function as a completer degree for students with an associate degree in engineering technology.

Students may apply early to the Master of Engineering Technology degree and double count 9 credit hours of graduate courses toward both degree programs. See the Combined Bachelor's/Master's Degree Program Policy in the University Catalog for more information.